COVID-19 Case Analysis

Phase 4

Objective:

The goal is to advance the COVID -19 Case analysis through exploratory data analysis (EDA), statistical examination, and visualization. The focus is on uncovering patterns, trends, and relationships within the data to inform evidence-based insights. By employing a combination of statistical tools and visualizations, the aim is to provide a comprehensive understanding of vaccination dynamics, identify global trends, and contribute valuable insights for strategic

Data Visualization

Dataset link: https://www.kaggle.com/datasets/chakradharmattapalli/covid-19-cases

The datas are Visualized using various tools.Analyzing and visualizing COVID-19 data is essential for understanding the spread of the virus, its impact on different regions, and making informed decisions. You can use various tools and programming languages for this purpose, such as Python with libraries like Matplotlib, Seaborn, and Plotly, or R with ggplot2. Here's a step-by-step guide on how to perform COVID-19 case analysis and data visualization:

Data Sources:

Obtain COVID-19 data from reliable sources, such as government health agencies (CDC, WHO), Johns Hopkins University's COVID-19 Data Repository, or data aggregators like Our World in Data.

Data Preprocessing:

Clean and preprocess the data, which may involve handling missing values, standardizing date formats, and aggregating data by regions if needed.

Data Visualization:

Use data visualization libraries to create informative and visually appealing charts and graphs. Below are some common types of visualizations:

a. **Time Series Data**:

Line charts to show the daily, weekly, or monthly trends in COVID-19 cases, recoveries, and deaths.

Stacked area charts to visualize the cumulative cases over time.

Bar charts to compare the cases in different regions or countries over time.

b. **Geospatial Data**:

Choropleth maps to show the distribution of cases by region or country.

Animated maps to visualize the spread of the virus over time.

c. **Comparative Analysis**:

Bar charts or pie charts to compare cases, recoveries, and deaths by country or region.

Heatmaps to visualize correlations between variables like case rates, testing rates, and vaccination rates.

d. **Demographic Analysis**:

Age and gender distribution charts.

Histograms or box plots to visualize the age distribution of cases.

e. **Vaccination Data**:

Stacked bar charts to show the vaccination status by age group or region.

Line charts to track the vaccination progress over time.

Interactive Dashboards:

Create interactive dashboards using libraries like Plotly or Tableau to allow users to explore the data and filter it based on their preferences.

Insights and Interpretation:

Provide context and insights based on your visualizations. What do the trends and patterns suggest? How has the virus affected different regions or demographic groups?

Dataset Loading

IBM Cognos is a business intelligence tool that allows you to analyze and visualize data. Loading a dataset into IBM Cognos typically involves several steps. Here's a step-by-step process to load a dataset into IBM Cognos Analytics:

Log In to IBM Cognos:

Open a web browser and access the IBM Cognos Analytics web interface.

Log in with your username and password.

Access the Data Module:

After logging in, you'll typically land on the Cognos Analytics dashboard.

Navigate to the "Authoring" or "Data" section, which might vary depending on your organization's setup and permissions.

Create a Data Module:

If you don't have an existing data module, create one by clicking on the "Data Modules" or a similar option.

Click "New" or "Create" to initiate the data module creation process.

Choose a Data Source:

In the data module creation process, you'll be prompted to select a data source. This can be a database, a file, or another data repository. Choose the appropriate source.

Connect to the Data Source:

Provide the connection details for the data source you selected. This might include server addresses, credentials, and other connection parameters.

Test the connection to ensure it's working correctly.

Select Tables or Data:

Once connected, you can select the tables or data you want to use in your data module. This involves specifying the data elements you want to work with.

Define Relationships (if applicable):

If your dataset consists of multiple tables, you may need to define relationships between these tables. This is important for creating meaningful visualizations and reports.

Data Modeling:

At this stage, you can perform data modeling tasks like data cleansing, transformation, and calculation to prepare your data for analysis.

Data Exploration:

Explore your data using the tools provided by IBM Cognos, which might include data profiling, data exploration, and data quality checks.

Save the Data Module:

Once you've set up your data module, save it with an appropriate name and description.
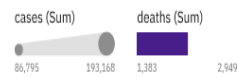
Build Visualizations and Reports:

After loading your dataset into the data module, you can start building visualizations

We can view various forms of data using the tools which helps to gain insights about the data.

Data Visualization for Cases and Deaths

day and month with cases and deaths for year

cases (Sum)   deaths (Sum)

86,795   193,168   1,383   2,949

month

3
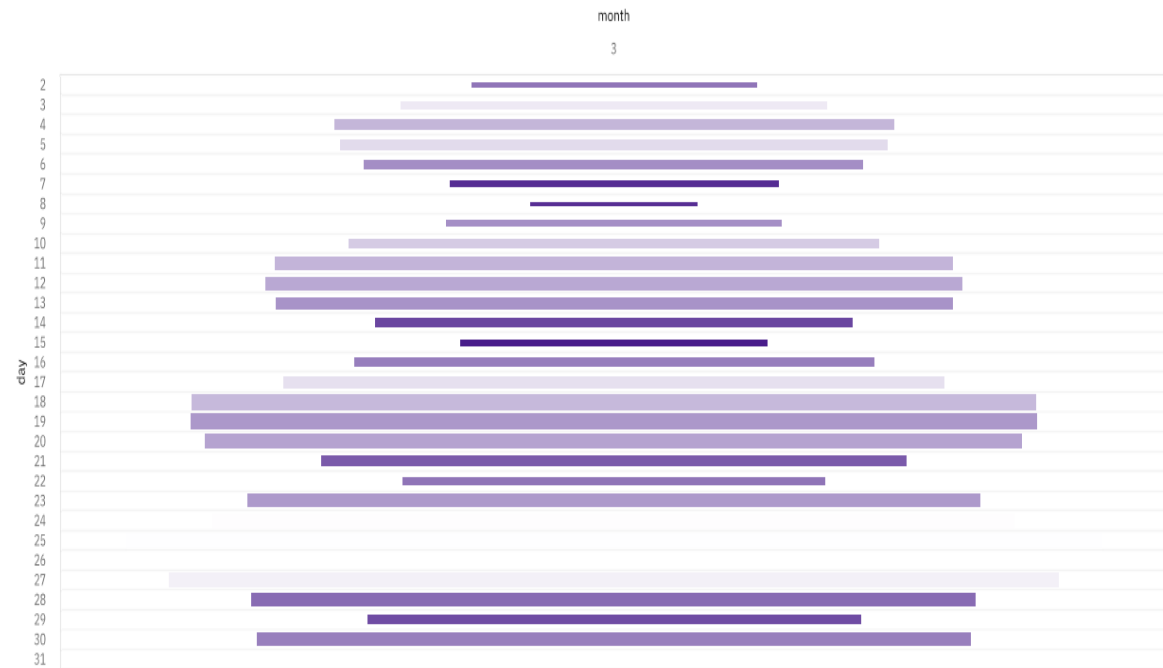
Bar chart

deaths and cases by month, year and day

Measures
● deaths ● cases

month - year - day
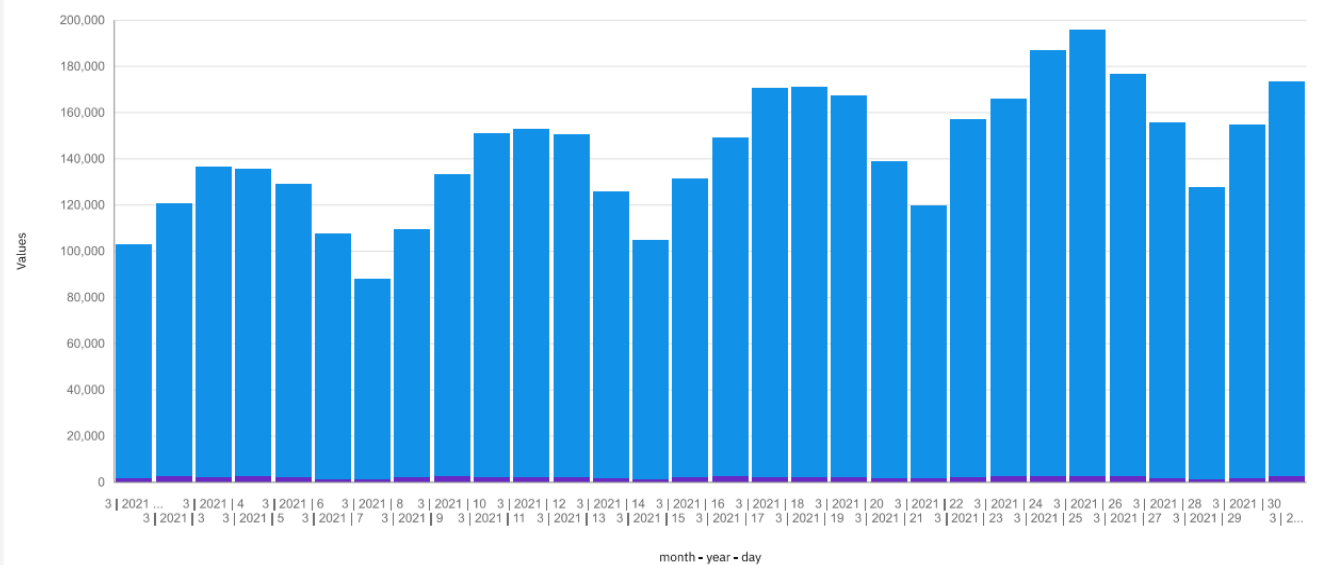
Mean for the data

Barchart

cases by day and month(mean)

Heatmap

cases by month and day

cases (Average)

2,893.17   6,438.93
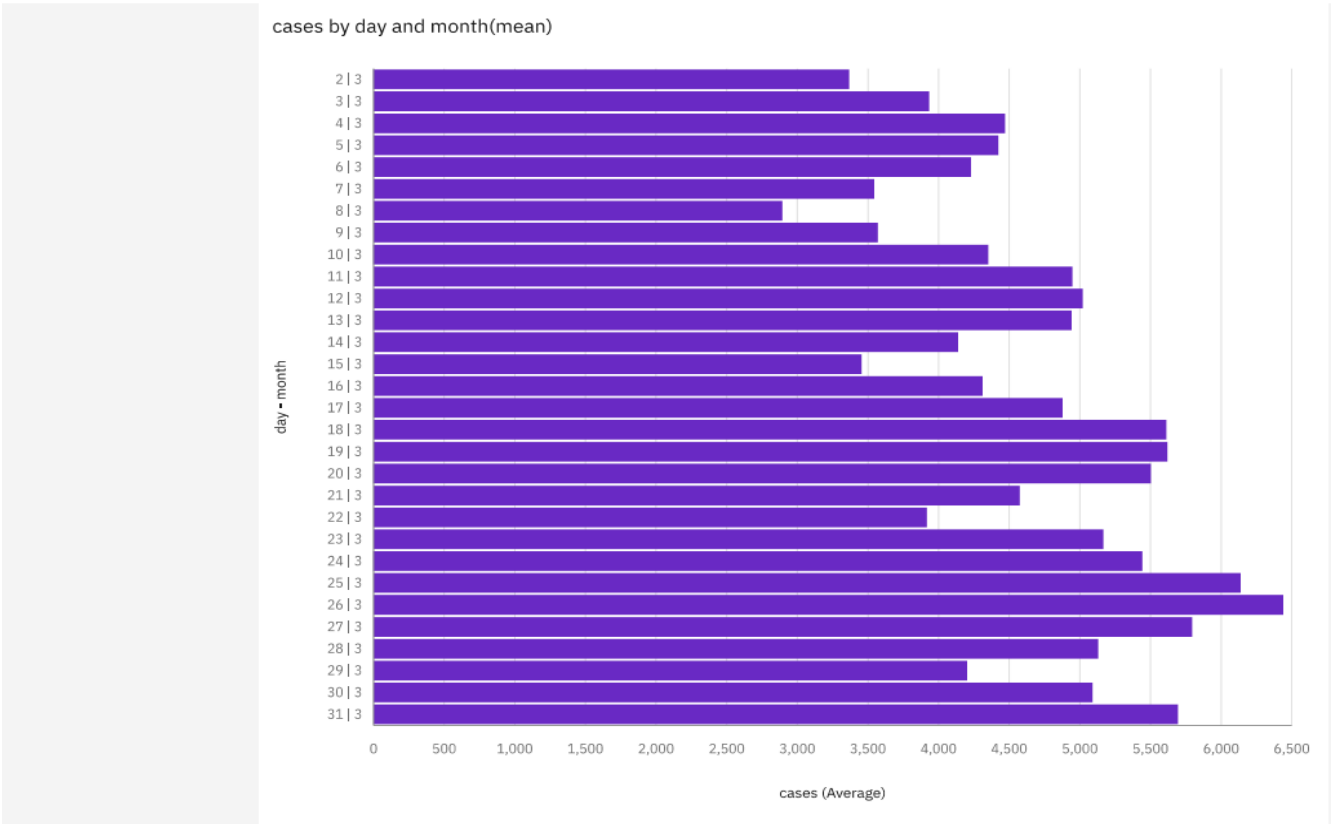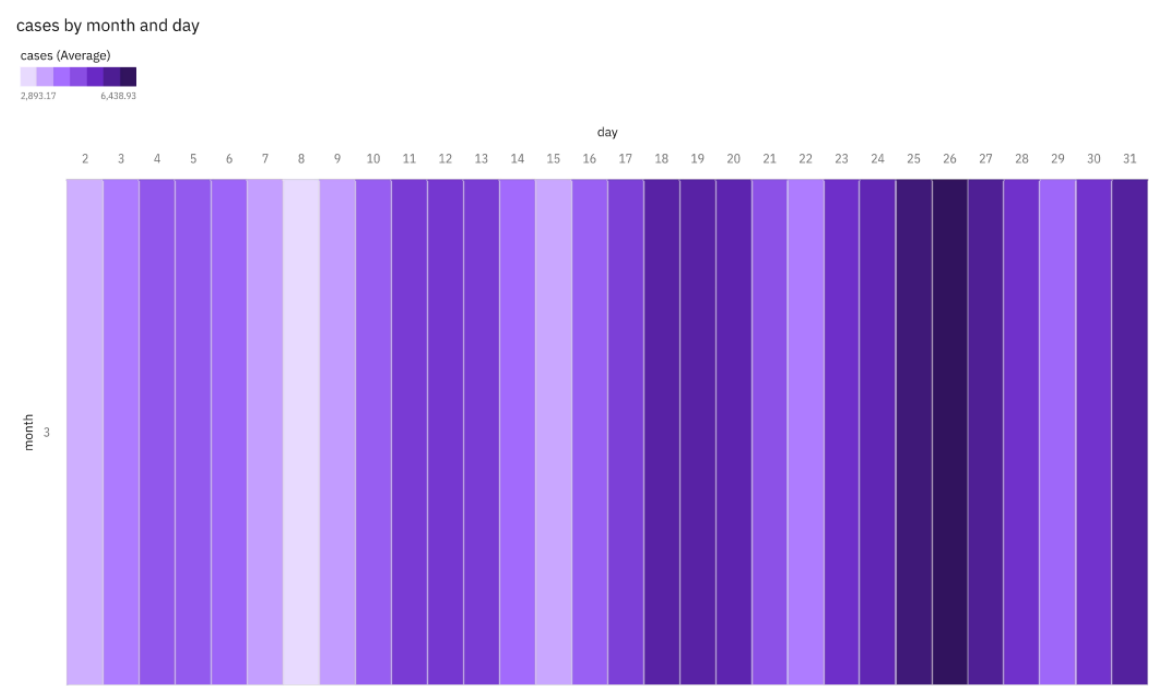
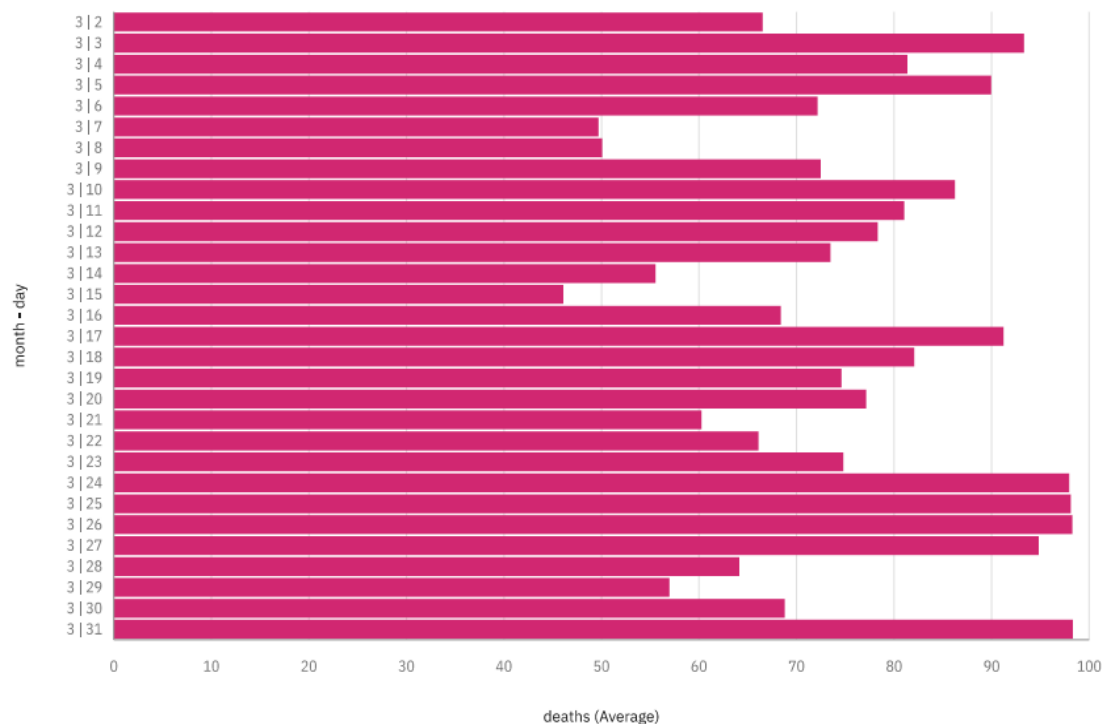Therfore mean For cases is

cases

4.69K

cases

Mean For Deaths

deaths by month and day(mean)

cases and deaths by month colored by day

Measures - day

● cases | 2 ● cases | 3 ● cases | 4 ● cases | 5 ● cases | 6 ● cases | 7 ● cases | 8 ● cases | 9 ● cases | 10 ● cases | 11 ● cases | 12
● cases | 13 ● cases | 14 ● cases | 15 ● cases | 16 ● cases | 17 ● cases | 18 ● cases | 19 ● cases | 20 ● cases | 21 ● cases | 22 ● cases | 23
● cases | 24 ● cases | 25 ● cases | 26 ● cases | 27 ● cases | 28 ● cases | 29 ● cases | 30 ● cases | 31 ● deaths | 2 ● deaths | 3 ● deaths | 4
● deaths | 5 ● deaths | 6 ● deaths | 7 ● deaths | 8 ● deaths | 9 ● deaths | 10 ● deaths | 11 ● deaths | 12 ● deaths | 13 ● deaths | 14 ● deaths | 15
● deaths | 16 ● deaths | 17 ● deaths | 18 ● deaths | 19 ● deaths | 20 ● deaths | 21 ● deaths | 22 ● deaths | 23 ● deaths | 24 ● deaths | 25 ● deaths | 26
● deaths | 27 ● deaths | 28 ● deaths | 29 ● deaths | 30 ● deaths | 31

Variation in death

deaths and monthday for cases colored by deaths(variations in death)

Measures - deaths

● month | 0 ● month | 1 ● month | 2 ● month | 3 ● month | 4 ● month | 5 ● month | 6 ● month | 7 ● month | 8 ● month | 9 ● month | 10
● month | 11 ● month | 12 ● month | 13 ● month | 14 ● month | 15 ● month | 16 ● month | 17 ● month | 18 ● month | 19 ● month | 20 ● month | 21
● month | 22 ● month | 23 ● month | 24 ● month | 25 ● month | 26 ● month | 27 ● month | 28 ● month | 29 ● month | 30 ● month | 31 ● month | 32
● month | 33 ● month | 34 ● month | 35 ● month | 36 ● month | 38 ● month | 39 ● month | 40 ● month | 41 ● month | 43 ● month | 44 ● month | 45
● month | 46 ● month | 47 ● month | 48 ● month | 49 ● month | 50 ● month | 51 ● month | 52 ● month | 53 ● month | 54 ● month | 56 ● month | 59
● month | 60 ● month | 63 ● month | 64 ● month | 65 ● month | 66 ● month | 67 ● month | 69 ● month | 70 ● month | 71 ● month | 72 ● month | 74
● month | 76 ● month | 77 ● month | 79 ● month | 80 ● month | 81 ● month | 82 ● month | 83 ● month | 84 ● month | 85 ● month | 86 ● month | 88
● month | 89 ● month | 90 ● month | 93 ● month | 94 ● month | 95 ● month | 96 ● month | 97 ● month | 98 ● month | 99 ● month | 100 ● month | 101

Standard Deviation

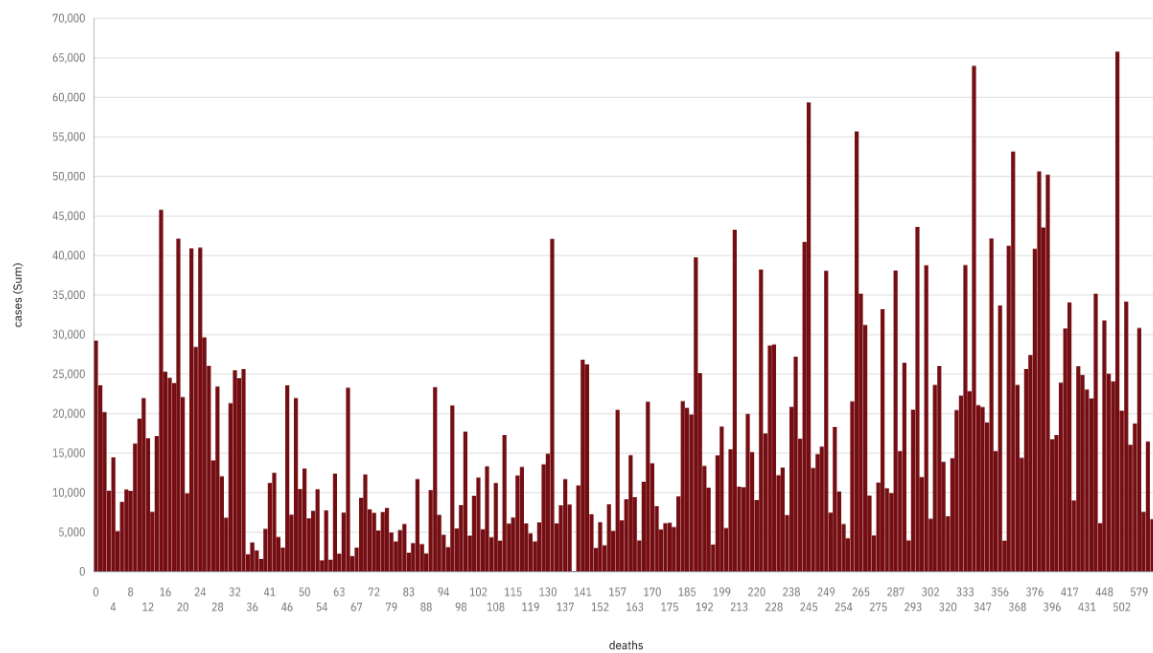cases by month and day(standard deviation)

Measures
● cases   ● cases +

Values

month ▪ day
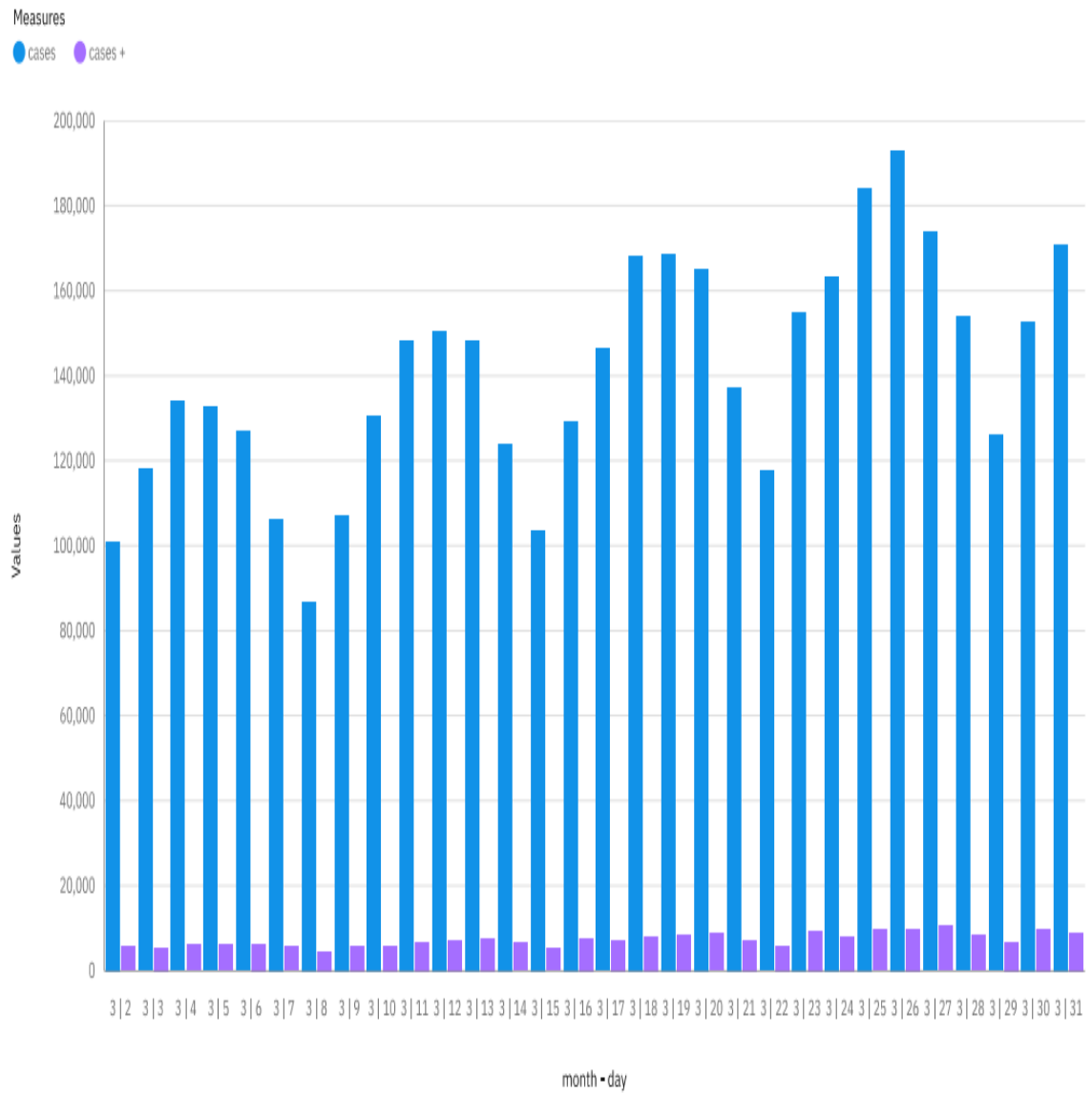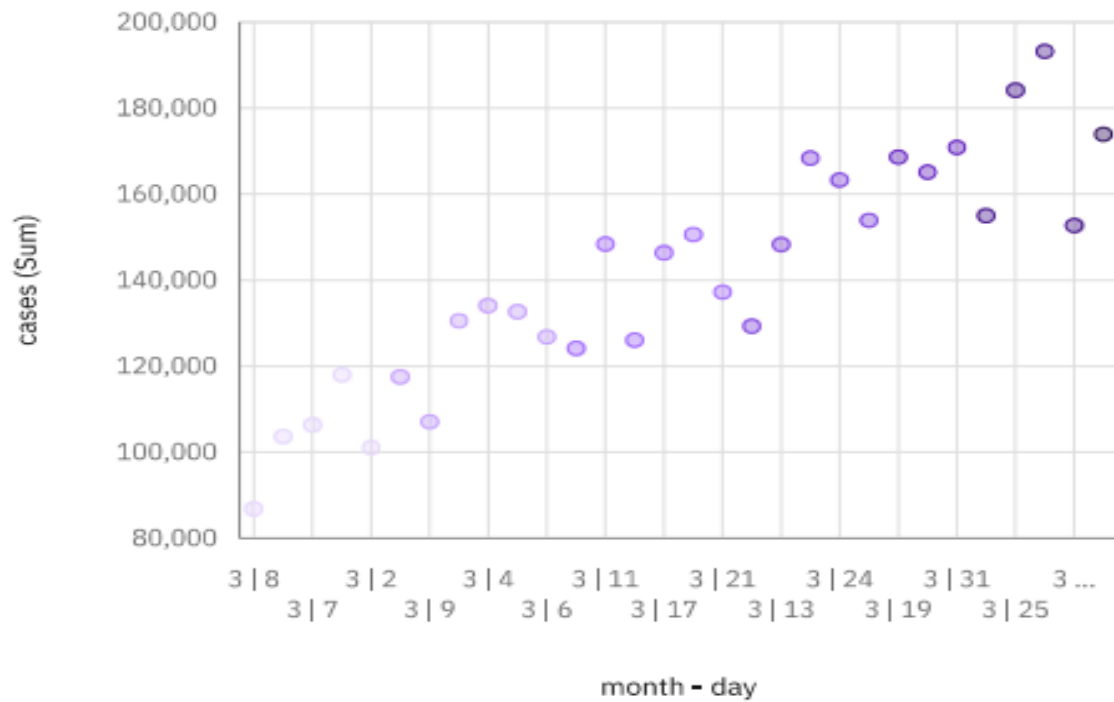
Data Visualization for

Conclusion

Thus we have observed various forms of pictorial representation of the graphs,charts in the Covid case analysis Project